AMENDMENTS TO THE CLAIMS

1. (Currently amended) An inertial actuator assembly comprising an actuator chassis adapted to be secured in use to a structure subject in use to external vibration forces, a proof mass [(m,,)] supported with respect to the chassis by a proof mass resilient means, and a force generating transducer means acting between the chassis and the proof mass for subjecting in use the proof mass to a force [(mu)] applied relative to the chassis, a controller arranged to control in use the excitation of the transducer means, characterized by a feedback means [H(ja')] responsive to a measurement of the displacement [(x)] of the proof mass relative to the chassis, the controller being arranged to modify the excitation of the force generating transducer means in response to a feedback signal from the feedback means.

2. An inertial actuator as claimed in claim 1 in which the measurement of displacement is provided by an internal displacement sensor.

3. An inertial actuator as claimed in claim 2 in which the internal displacement sensor is selected from the group: an electrostatic sensor; an electrical resistance sensor; a capacitive sensor; an inductive sensor; an optical sensor.

4. An inertial actuator as claimed in claim 3 in which the internal displacement sensor is a strain gauge.

5. (Currently amended) An inertial actuator as claimed in any <u>of</u> [previous claim] <u>claims 1 to 4</u> in which the feedback signal is proportional to the measurement of the displacement.

6. An inertial actuator as claimed in any of claims 1 to 4 in which the feedback signal is proportional to the integral of the measurement of the displacement.

7. An inertial actuator as claimed in any of claims 1 to 4 in which the feedback signal is proportional to the derivative of the measurement of the displacement.

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8. An inertial actuator as claimed in any of claims 1 to 4 in which the feedback signal is any combination of a signal proportional to the displacement, a signal proportional to the integral of the displacement and a signal proportional to the derivative of the displacement.

9. (Currently amended) An inertial actuator as claimed in [any previous] claim 1 in which the actuator chassis comprises a casing.

10. (Currently amended) An inertial actuator as claimed in [any previous] claim 1 in which the force generating transducer means is selected from the group: an electromagnetic motor; a pneumatic motor; an electrostatic motor.

11. An inertial actuator as claimed in claim 9 in which the force generating transducer means comprises an electromagnetic motor.

12. (Currently amended) An inertial actuator as claimed in [any previous] claim 1 which comprises a temperature sensor.

13. (Currently amended) An inertial actuator as claimed in [any previous] claim 1 which comprises a stop mechanism adapted to restrict the motion of the proof mass relative to the chassis in the event of actuation control failure.

14. (Currently amended) The use of an inertial actuator as claimed in [any one of the preceding claims] claim 1 in which the inertial actuator is employed to improve the stability properties of another, outer, control system.

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